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10/733,728	12/12/2003	Neil John Graham	51,179	9728

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07/18/2006

Neil John Graham  
6017 Lido Lane  
Long Beach, CA 90803

EXAMINER

WERNER, JONATHAN S

ART UNIT PAPER NUMBER

3732

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/733,728

**Applicant(s)**

GRAHAM, NEIL JOHN

**Examiner**

Jonathan Werner

**Art Unit**

3732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. This action is in response to Applicant's amendment received on 4/21/06.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 1, 7, 13, 19 and 25, Applicant claims an arch bar that is "attached to a fixed orthodontic appliance by piggybacking on the labial side of an installed orthodontic appliance." However, it is not clear how the arch bar can be fixed to said appliance by piggybacking on an installed orthodontic appliance since it is not disclosed whether the two appliances are distinct – i.e. how piggybacking the arch bar to an installed appliance can attach it to a separate fixed appliance. Additionally, Examiner does not understand how the longitudinal body of the wire can become curved if placed on the installed orthodontic appliance as opposed to the fixed appliance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Wool (US 4,424,033). In re claims 1 and 3, Wool shows an arch bar comprising a metal wire with a longitudinal body having opposing longitudinal ends (Figure 1) and a cross-sectional diameter (Figure 3); a longitudinal length similar to the length of an arch wire on a fixed orthodontic appliance (Figure 7); a straight longitudinal body which becomes curved when placed on the orthodontic appliance (Figure 7); tying means for attaching the accessory arch bar to an orthodontic appliance, wherein a wire ligature is used to attach the arch bar to an orthodontic bracket (Figure 7); and a cross-sectional diameter in the range of 0.020 inches to 0.60 inches (col 6, ln 25). In re claim 7, Wool shows an arch bar attached to a fixed orthodontic appliance by piggybacking on the labial side of the installed appliance (Figure 7), comprising a metal wire with a longitudinal body having opposing longitudinal ends (Figure 1), a cross-sectional diameter (Figure 3), and the longitudinal body is curved on a flat plane (Figure 1); a longitudinal length similar to the length of an arch wire on a fixed orthodontic appliance (Figure 7); tying means for attaching the accessory arch bar to an orthodontic appliance, wherein a wire ligature is used to attach the arch bar to an orthodontic bracket (column 4, lines 9-11); and a cross-sectional diameter in the range of 0.020 inches to 0.60 inches (col 6, ln 25).

4. Claims 13, 16, 19, 21-22, 25 and 27-28 are rejected under 35 U.S.C. 102(b) as being anticipated by White (6,431,861). In re claim 13, White discloses an arch bar attached to a fixed orthodontic appliance (Figure 3) comprising a metal wire with a longitudinal body having opposing ends (Figure 1-2); a cross sectional diameter (col 6, ln 2-3); and a longitudinal axis

(Figure 1). It should be noted that applicant is claiming an article of manufacture and not the process of forming/making the device, accordingly, the manner in which the device is formed, i.e. forming the desired dental arch shape “with” a flat occlusal plane, is given little weight. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). In re claims 16, 22 and 28, White discloses the composition of the dental arch bar is stainless steel (col 1, ln 38). In re claims 19 and 25, White discloses the arch bar as previously described, as well as shows the wire is curved either upwards or downwards away from the flat plane in the direction that the occlusal plane of the teeth is to be moved (col 5, ln 54-59); a longitudinal length similar to the length of an arch wire on a fixed orthodontic appliance (Figures 2-3); tying means for attaching the accessory arch bar to an orthodontic appliance, wherein a wire ligature is used to attach the arch bar to an orthodontic bracket (col 7, ln 10-11); and a cross-sectional diameter range that is between 0.020 inches to 0.60 inches (col 3, ln 47-49). In re claims 21 and 27, White discloses the composition of the arch bar is comprised of metal compositions (col 3, ln 50-54).

5. Claim 31 is rejected under 35 U.S.C. 102(b) as being anticipated by Kesling (4,676,747). Kesling discloses using an accessory arch bar for placing orthodontic force upon the teeth consisting of forming a longitudinal arch bar into a pre-determined shape (Figure 2/Column 3, Lines 51-53); placing the bar adjacent to the cheek side of an arch wire of an orthodontic appliance (Figure 3); and ligating the bar to an orthodontic appliance (col 2, lines 3-8).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Moss (3,315,359). Wool discloses a dental arch bar as previously described, but is silent as to having ends of said bar that are formed at a right angle to the bar's long axis and directed towards the teeth. Moss, however, teaches bending the ends of an orthodontic arch wire at right angles to form secure end sections (col 2, ln 57-60). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to form right angles in the end sections of the arch bar in order to create secure end sections that do not irritate the inside portions of a patient's mouth as taught by Moss.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of White. Wool discloses an arch bar as previously described, but fails to disclose the bar is comprised of stainless steel. White, however, teaches an arch bar that is comprised stainless steel (col 4, ln 20). Therefore, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to make the arch bar out of stainless steel in order to ensure the bar can manipulated to lie within a flat plane or can substantially follow a continuous curved shape as taught by White.

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8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wool. Wool discloses an arch bar as previously described, but fails to disclose the specific cross-sectional diameter of the arch bar is 0.027 inches. Although, Wool does disclose a cross-sectional diameter of the arch bar to be about 0.022 inches (col 6, ln 25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the cross-sectional diameter 0.027 inches since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Kelly (6,095,809). In re claim 6, Wool discloses a dental arch bar as previously described, but is silent as to the composition of the bar being Ti beta 3. However, Kelly teaches an orthodontic arch bar that is comprised of beta-titaniums (col 5, ln 46-52). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to make the arch bar comprise of Ti beta 3 in order provide a sufficient stiffness and flexibility for the bar to operate as taught by Kelly.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Moss. In re claim 8, Wool discloses a dental arch bar as previously described, but is silent as to having ends of said bar that are formed at a right angle to the bar's long axis and directed towards the teeth. Moss, however, teaches bending the ends of an orthodontic arch wire at right angles to form secure end sections (col 2, ln 57-60). Therefore, it would be obvious to one

having ordinary skill in the art at the time of the applicant's invention to form right angles in the end sections of the arch bar in order to create secure end sections that do not irritate the inside portions of a patient's mouth as taught by Moss.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Miura (5,017,133). In re claim 9, Wool discloses a dental arch bar as previously described, but is silent as to having ends of said bar that are looped towards the teeth when placed on an orthodontic appliance. Miura, however, teaches bending the ends of an orthodontic arch wire into loops (Figures 2-3) wherein the loop can encircle an orthodontic wire or bracket hook. Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to form loops in the end sections of the arch bar in order to secure said end sections and prevent the arch bar from slipping through the brackets as taught by Miura.

12. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wool in view of Kelly (6,095,809). In re claims 10 and 12, Wool discloses a dental arch bar as previously described, but is silent as to the composition of the bar. Kelly, however, teaches an orthodontic arch bar that is comprised of metal compositions, including beta-titaniums (col 5, ln 46-52). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to make the arch bar comprise of metal compositions (i.e. Ti beta 3) in order provide a sufficient stiffness for the bar to operate as taught by Kelly.



13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wool. Wool fails to disclose the specific cross-sectional diameter of the arch bar is 0.027 inches, though Wool does disclose a cross-sectional diameter of the arch bar to be 0.022 inches (col 6, ln 25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the cross-sectional diameter 0.027 inches since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

14. Claims 14, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Moss. In re claims 14, 20 and 26, White discloses a dental arch bar as previously described, but is silent as to having ends of said bar that are formed at a right angle to the bar's long axis and directed towards the teeth. Moss, however, teaches bending the ends of an orthodontic arch wire at right angles to form secure end sections (col 2, ln 57-60). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to form right angles in the end sections of the arch bar in order to create secure end sections that do not irritate the inside portions of a patient's mouth as taught by Moss.

15. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Miura. In re claim 15, White discloses a dental arch bar as previously described, but is silent as to having ends of said bar that are looped towards the teeth when placed on an orthodontic appliance. Miura, however, teaches bending the ends of an orthodontic arch wire into loops (Figures 2-3) wherein the loop can encircle an orthodontic wire or bracket hook. Therefore, it

would be obvious to one having ordinary skill in the art at the time of the applicant's invention to form loops in the end sections of the arch bar in order to secure said end sections and prevent the arch bar from slipping through the brackets as taught by Miura.

16. Claims 17, 23 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over White. White discloses an arch bar as previously described but fails to disclose the specific cross-sectional diameter of the arch bar is 0.027 inches, though White does disclose a cross-sectional diameter of the arch bar to be between about 0.012 inches and 0.022 inches (col 3, ln 47-49). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the cross-sectional diameter 0.027 inches since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

17. Claims 18, 24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over White in view of Kelly. In re claims 18, 24 and 30, White discloses a dental arch bar as previously described, but is silent as to the composition of the bar being Ti beta 3. However, Kelly teaches an orthodontic arch bar that is comprised of beta-titaniums (col 5, ln 46-52). Therefore, it would be obvious to one having ordinary skill in the art at the time of the applicant's invention to make the arch bar comprise of Ti beta 3 in order provide a sufficient stiffness and flexibility for the bar to properly operate as taught by Kelly.

***Response to Arguments***

18. Examiner herein acknowledges and approves all corrections relating to Applicant's claims rejected under 35 U.S.C. 112, however, as a result of the amended claims, a new ground of rejection under 35 U.S.C. 112 exists as described above.

19. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments with respect to claims 7-31 have been fully considered but they are not persuasive. In regards to claim 7, Applicant remarks that Wool discloses both a round cross-sectional diameter and a rectangular cross-sectional diameter. As Applicant admits, the round cross-sectional diameter of Figure 3 is the same as the present invention. The mere disclosure of the additional embodiment of a rectangular cross-sectional diameter by Wool does not render the claim unanticipated in light of the 1<sup>st</sup> embodiment as previously described. Additionally, Applicant does not positively claim the specific shape of the cross-section. Applicant also remarks that Wool does not disclose the cross sectional diameter is between 0.020 inches to 0.60 inches. However, as described above, since Applicant has not positively claimed any structural limitation relating to the shape of said cross-section, Wool's disclosure that the cross-section of a segment of the wire is 0.022 inches falls squarely within the Applicant's claimed range, and is thus anticipatory. In response to Applicant's argument that the size of the wire is made to fit within the slot of a bracket, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

20. With regard to claim 13, Applicant remarks that White discloses an archwire and not an arch bar, and that an archwire is a “metal wire which is attached to your brackets to move your teeth.” However, the arch bar as claimed by Applicant recites the same structure (i.e. a metal wire that is placed on an orthodontic appliance and used to move teeth). Therefore, the arch bar as claimed by Applicant is structurally similar to the archwire disclosed by White, and thus White is considered anticipatory of Applicant’s invention. Additionally, Applicant argues that White fails to disclose a wire which exceeds the size of an orthodontic bracket slot. However, Applicant is silent as to the specific size of the cross-section in the claim. Examiner notes that Figure 1A of White does indeed show the wire comprises a longitudinal axis which is especially evident at the opposing ends of said wire in the figure.

21. Furthermore, in regard to claims 19 and 25, Applicant remarks that said claims, “as amended, claim an arch bar which is piggybacked on the cheek side of an installed archwire” – of which Applicant asserts White fails to disclose. Examiner notes, however, that Applicant has not claimed said piggybacking feature as just described. Instead, the amended portion of the claims read that the arch bar is piggybacked to an installed orthodontic appliance – in this case, a bracket as disclosed by White. Examiner also notes that the amended “piggybacking” feature has been given little patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to

stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Additionally, Applicant remarks that the diameter of the cross-section as disclosed by White is between 0.012 inches and 0.022 inches and is therefore not anticipatory of the claimed diameter range of between 0.020 inches to 0.060 inches. Examiner reminds Applicant that the range disclosed by White still falls within the range of the claimed invention and therefore is indeed anticipatory.

22. As to claim 31, Applicant remarks that Kesling discloses “torquing auxiliaries which are secured to the braces,” and that the present invention claims the arch bar is “used for placing orthodontic force upon the teeth.” Examiner notes that applying torque to a component is the same as applying a force in such a way as to produce rotation or torsion. Applicant does not specifically claim what kind of force is applied to the teeth, thus applying a torsional force (aka torquing) as disclosed by Kesling is anticipatory of the claimed force applied. On a similar note, Applicant fails to positively claim the shape of the cross section. Hence, Applicant’s argument that the present invention does not require a rectangular or square cross-section is moot. As to Applicant’s remarks that Figure 3 does not show the wire is placed on the cheek side of an arch wire of an orthodontic appliance, Kesling states that Figure 3 is only a fragmentary view and that the arch bar is capable of being placed anywhere along the teeth. Even still, Figure 3 clearly shows the cuspid teeth, which are adjacent the cheek side, are covered by said bar. Lastly, Examiner notes that Applicant’s arguments that the present invention does not disclose a locking pin are moot since the issue at hand is about ligating the accessory arch bar to the appliance.

Column 2, lines 3-8 of Kesling disclose that the arch bar can be connected to an orthodontic appliance by means of ligating.

23. In response to applicant's argument that "the Moss right angle does not produce a more secure end section but allows the end of the wire to be in position to be soldered," the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

24. As to claims rejected in view of Miura, Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. As admitted by Applicant, Miura teaches a motivation for looping the arch bar ends (column 2, lines 17-20). Additionally, for all claims rejected in view of Kelly, Examiner notes that Kelly teaches a wire that is comprised of metal compositions as disclosed above in order to provide a sufficient stiffness for the bar to operate as described above. In response to applicant's arguments against the references individually – i.e. Applicant's argument that Kelly discloses an arch wire and not an arch bar – one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

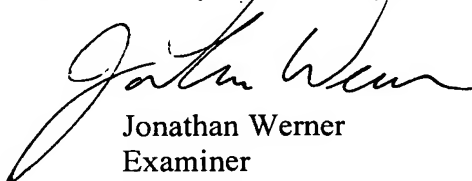
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Werner whose telephone number is (571) 272-2767. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris Rodriguez can be reached on (571) 272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jonathan Werner  
Examiner  
TC 3700

7/5/06



MELBA N. BUMGARNER  
PRIMARY EXAMINER